Supplemental Information Report

Review of New Information
And Changed Circumstances in the
Lakes Project Area (Bitter Unit)
December 2002

Introduction

In 2001 an environmental analysis was conducted and an environmental assessment (EA) was prepared which documented the effects of implementing alternative management strategies for the Lakes Project Area. On January 11, 2002, I made a decision to implement Alternative B with modifications. The decision was appealed and subsequently affirmed by the R2 Appeal Deciding Officer on April 15, 2002. The Lakes EA and Decision Notice authorizes implementation of the Bullock and Bitter Timber Sales. The Bullock Timber Sale has been sold and is under contract with Pope & Talbot. The Bitter Timber Sale is currently going through the sale preparation process.

Circumstances have changed recently resulting from the Battle Creek Fire, which may affect the Bitter Timber Sale. This supplemental information report (SIR) documents my review of these changed conditions, and my determination concerning continued implementation of my decision of January 11, 2002, relative to the Bitter Timber Sale.

This review is conducted pursuant to Forest Service policy directives in FSH 1909.15, Chapter 10, Section 18. This determination is purely administrative and is not appealable.

Background: The Bitter Timber Sale

The Bitter Timber Sale area is located about 9 air miles west of Rapid City, South Dakota on lands administered by the Mystic Ranger District. It encompasses over 7,493 acres of National Forest System lands and is interspersed with about 322 acres of other ownership (see attached vicinity map). The topography is characterized by uplifted rock outcrops, rolling to broken timbered terrain with moderate to steep slopes, and is dissected by shallow to deep draws and canyons. The vegetation communities in the area are dominated by ponderosa pine but also include aspen, bur oak, and grass communities.

The Lakes EA and Decision for the Bitter Timber Sale is hereby incorporated by reference in this SIR. A copy is on file at the Forest Supervisor's Office in Custer, SD. The objectives of this project includes: increasing vegetative diversity; providing wood fiber for commercial use; and protecting soil, water, timber resources, scenic quality and wildlife habitat (EA, page 4).

There were seven prevailing issue categories addressed in the Lakes EA (EA, page 14). They are summarized as follows:

- Concerns for protecting and improving wildlife habitat.
- Support and opposition to timber harvest.
- Concern for protecting and improving Pactola Lake and Sheridan Lake watersheds.
- Desire to preserve the scenic beauty of the area.
- Concern for road impacts plus the desire for more/less access.
- Concern for impacts to developed recreation areas and the health of the forest as related to Mountain Pine Beetle Infestation.
- Support and opposition to prescribed burning.

The effects of implementing Alternative B as modified were disclosed in the EA. This discussion can be found in the EA, Chapter 3, Environmental Consequences.

Change Since the Decision

Since my decision on this project, conditions within the Bitter Timber Sale area have changed due to the Battle Creek Fire and may have a bearing on management in the area, and it is proper to review it at this time.

Battle Creek Fire - August 2002

Background. On August 16, 2002, the Battle Creek Fire ignited near the Children's Home along South Rockerville Road. The fire spread rapidly and overpowered suppression efforts. By the time it was declared contained on August 25, 2002, it had burned 12,450 acres (approximately 9,120 acres of National Forest System lands and 3,330 acres of private land). This fire impacted portions of three timber sales: Beagle TS south of Hwy 16 and both Hollow and Bitter TS just north of Hwy 16.

An initial assessment of the fire was conducted, effects disclosed and management recommendations made—see Final Battle Creek Fire Rapid Assessment Team (Battle RAT) Report, September 2002. The Battle RAT Report is hereby incorporated by reference into this SIR. This report correlated tree mortality with fire intensity and estimated that, within high intensity burn areas, tree mortality would be 90-100%. Within moderate intensity burn areas, tree mortality varied considerably from 10% to 100%. And within low intensity burn areas tree mortality would be less than 20%. Additionally, the report projected that ponderosa pine trees with less than 1/3 green crown remaining would eventually die as a result of the fire.

Changes to the Bitter Timber Sale due to the Fire. The Bitter Timber Sale, as initially configured during planning, consisted of approximately 3,885 treatment acres within a sale area of about 7,493 acres of National Forest Service lands. The Battle Creek Fire burned an estimated 719 acres (10%) of the sale area.

The changed conditions warrant adjustments to the Bitter Timber Sale. These adjustments include harvesting dead trees included both within and adjacent to stands as initially configured within the sale area. Specifically, these adjustments include harvesting fire-killed trees in stands originally identified for treatment with the addition of other stands affected by the fire and not originally designated for treatment (see attached maps).

Salvage potential is based on a number of criteria, such as relatively gentle slopes which minimizes potential negative effects to soils, and where the dead trees are of sufficient size and large enough numbers to provide for economic removal. As stated earlier, an estimated 719 acres burned over. Approximately 587 of those acres of timber can be considered salvageable. The remaining 132 acres are not salvageable due to steep slopes and unmerchantable sized timber. There are 485 acres of treatments in the original decision that will need to be modified or deferred and 587 acres where pine will be salvaged. The net change with stands deferred and other stands added for salvage will be an increase of 102 acres (see Table 1).

The Silviculture Report (in the Project File) contains data that displays pre and post fire conditions for stands affected by the fire. This includes two stands, 092202-3.1 and 092202-51.1, which are not within the fire perimeter but where treatment was deferred based on recommendations made by the wildlife biologist for a Goshawk Post Fledgling Area (PFA) within the burned area. Also reflected in the table are patch clearcuts which will also be removed from the burned over area per biologists recommendations. The fire created openings that will be substituted for openings originally planned to be created through the timber sale.

Fire-killed trees within sale units remain commercially valuable if removed to a mill within 6 months to a year (no later than August 2003). After this time the quality of the wood degrades due to the action of agents such as blue stain fungus, wood boring insects and checking (splitting of the tree bole). Consequently commercial value drops significantly, adversely affecting the value recovery of the saw-timber sized trees.

Adjustment #1: Original harvest prescriptions were reviewed on a site-by-site basis by the review team including the silviculturist and wildlife biologist. An assessment found that the mortality occurring within stands affected ranged from little or no mortality in stands with under burns to total stand replacement that killed all of the pine in the stand. Adequate green trees remain in many of the burned over stands that would permit implementation of planned prescriptions with appropriate adjustment as outlined below. High quality green trees would be retained to meet the original specified treatments and surplus trees dead, damaged and live would be removed.

Adjusted layout and marking guides follow:

- Salvage Stands: Treatments specified in the Bitter Timber Sale that were identified as salvage stands should have only the dead and heavily scorched pine removed. The rule for heavy scorch is: if 2/3^{rds} or more of the formally live crown was scorched during the fire than it will be considered salvageable and removed, if merchantable. Other pine obviously damaged due to fire, i.e. cat-faced trees that are burned out, and will obviously not survive will also be removed, if not retained as snags. The former prescription will no longer apply.

- Non-Salvage Stands: Stands specified for treatment within the fire area and not identified as "salvage only" should be marked as per original marking guides retaining spacing and Basal Areas (BA) as specified. In addition, dead and scorched pine using the "2/3rds rule" outlined above will also be removed. In small patches of dead timber where the BA cannot be maintained, retain as much of the green BA as possible, removing the dead and scorched pine.

- Patch clear-cuts: Patch clear-cuts originally specified within the fire area should not be created. Follow the surrounding stand prescription instead. Openings created by the fire will more than substitute for originally prescribed patch clear-cuts.

- Snag Retention: Every effort should be made to leave an average of 4 of the largest dead pine per acre scattered in groups throughout the treatment area and preferably away from roads and travel ways where they could be cut illegally as firewood. Whenever possible leave clumps where they will be sheltered from high winds for longevity. Heavily scorched pine with less than 15% of the green crown left and pines with bole damage work well. They generally take longer to die and tend to produce resin, forming a harder, longer standing snag.

Note: In areas that will be salvaged as "Designated by Description", the snag recommendations can be achieved by laying out the cutting unit to go around groups of snags along the perimeter of the unit or small patches within the unit if feasible.

Table 1 displays the changes within the Bitter Timber Sale portion of the Lakes EA by vegetative treatments. This includes net changes due to Goshawk habitat and the removal of patch clearcut treatments:

Table 1. - Sale Area Summary Bitter

Vegetation Treatment	Pre-Fire	Post-Fire	Change
Commercial thinning with precommercial thinning	222	222	0
Commercial thinning without precommercial thinning	1,221	1,084	-137
Liberation Cut	470	217	-253
Multiple Density thinning w/ precommercial thinning	56	56	0
Multiple Density thinning w/o precommercial thinning	94	94	0
Shelterwood Seed Cut	41	41	0
Selection Cut	71	71	0
Shelterwood Overstory Removal with precommercial thinning	313	313	0
Precommercial Thinning Non-Commercial	81	81	0
Multiple Density – Precommercial Thinning – Non-Commercial	48	48	0
Hardwood Retention Commercial and Non-Commercial	249	232	-17
Hardwood Retention – Non-Commercial	115	115	0
Hardwood Restoration – Commercial and Non-Commercial	131	119	-12
Hardwood Restoration – Non-Commercial	0	0	0
Hardwood Regeneration – Commercial and Non-Commercial	12	12	0
Meadow Retention – Commercial and Non-Commercial	44	44	0
Meadow Retention – Non-Commercial	273	273	0
Meadow Restoration – Commercial and Non-Commercial	84	84	0
Patch Clear Cut – Commercial with Non-Commercial	283	217	-66
Patch Clear Cut – Non-Commercial	77	77	0
Totals:	**3,885**	**3,400**	**-485**
Salvage Treatments	--	--	--
Salvage in no treatment areas	0	313	313
Commercial Thin w/o noncommercial thin with Salvage	0	139	139
Liberation Cut with Salvage	0	106	106
Hardwood Retention with Salvage	0	17	17
Hardwood Restoration with Salvage	0	12	12
Totals (Salvage Treatments):	**0**	**587**	**587**
Total Area Treated	**3,885**	**3,987**	**+102**
Volume Removed			
Sawtimber MBF (Live)	9,008	7,592	-1,416
Salvage (Dead)	0	1,954	+1,954
Totals	**9,008**	**9,546**	**+538**
Prescribed Burning (acres)	1,138	1,138	0

Adjustment #2: The SIR review team identified a need to prescribe a specific order of harvest entry into Bitter Timber Sale units. The order is a prioritization based on the following:

- The intent is to defer harvest in "green" units until the salvageable dead component is removed as discussed below.

- There is a need to harvest units containing dead material as soon as possible to recover value in a timely manner.
- Contractually, removal of most of the dead timber first will be emphasized, prior to approval of operations in predominantly low intensity or no burn "green" units.

In all stands within the burn, retain any "live" trees not designated to be cut and with 1/3 or greater live crown, to provide for future snags and other resource needs such as green seed source.

Units must be accepted, and/or approved in writing, prior to entry into the second or third priority units. The following are expected changes in harvest sequence:

- 1st Priority: Salvage the dead first: Remove the dead within units in the burn first.
- 2nd Priority: Harvest allowable green volume in the 1st priority units after the dead is removed.
- 3rd Priority: Harvest remaining allowable green volume

Adjustment #3: Travel on roads closed to the public within the sale area and burn perimeter is currently hazardous due to high numbers of dead trees that could fall on or adjacent to roads. This poses a significant safety hazard to timber sale contract personnel, and Forest Service administrative personnel who will enter the area. Many or most of these trees are expected to fall within the next five years (Battle RAT Report, pg. 77, 84, 96). There is an opportunity to substantially reduce the magnitude of this hazard by removing dead hazard trees along these roads now, under the sale contract.

A hazard tree is defined here as one that has 50% or more of the crown scorched, burned tree stumps within 3 feet of a standing tree, 50% or more of the bole burned with streaming pitch, or shows signs of insect activity. In addition, the following guidelines will apply:

- Trees uphill from the road will be removed if they are within the length of the tree height plus 20' from the road edge.
- Trees downhill from the road or on level ground will be removed if they are within the length of the tree height from the road edge.
- If the tree is leaning toward the road, it should be removed if within the clearing limits defined above. If a tree is leaning away from the road, it will be left if within clearing limits defined above.
- Retain any live trees with greater than 50% live crown that do not pose safety hazards. These trees will provide for future snags as well as a seed source.

Adjustment #4: Watershed protection requirements apply to the burned units:

- Design skid trails to minimize the concentration of runoff.
- Avoid storage or deposition of slash, log decks, and other materials within drainages.
- Avoid extensive disturbance of residual duff and litter.
- Avoid mechanical disturbance to compactive soils when wet.
- When falling trees to be retained on site, fall on the contour.

- In high intensity burn areas increase the ground cover by retaining limbs and tops of trees on the ground.
- In moderate intensity burn areas leave woody material to achieve 60% ground cover ("a torturous water path") after harvest completion.
- In low intensity burn areas (where litter and duff layer were consumed) leave enough wood material to provide at least 60% groundcover after harvest completion.

Changes to Effects Disclosed in the EA:

Based on site reviews by the team silviculturist, wildlife biologists and the Final Battle RAT report, an overview of effects of the new information and changed circumstances relative to the timber sale action are summarized as follows.

The effects of the Battle Creek Fire on the Bitter Timber Sale are varied. Some stands sustained an under burn, killing most of the seedlings and saplings and leaving most of the larger trees undamaged. In other stands, the fire burned in a mosaic pattern, killing patches of trees regardless of size. The most severe impact occurred in stands that sustained moderate to high fire intensity, killing most if not all of the trees.

Wildlife habitat has been altered and/or eliminated in most areas. See discussion under cumulative effects below.

The total sale volume has been adjusted due to the changes documented in this SIR—see summary in Table 1.

Changes to Cumulative Effects Disclosed in the EA:

Big game hiding cover and thermal cover has been reduced in the burned area. The amount of late-successional forest in the landscape has been reduced. These are habitat components that were present in limited amounts prior to the burn and will not be further reduced with treatments. It will take many years for these characteristics to be restored, regardless of whether or not the actions here are taken. The portion of the burn area within the Bitter Timber Sale falls within Management Area 5.1. The Forest Plan provides no direction to maintain thermal or hiding cover. The Lakes EA leaves several other areas of late-successional structure untreated.

Habitat for woodpeckers dependent on post-fire conditions has been substantially improved, within the fire area and throughout the Forest as a result of recent wildfires, prescribed burns, storm damage, and widespread "Ips" and mountain pine beetle outbreaks. Salvage of fire-killed trees within the Bitter Sale will not have a measurable effect on woodpecker populations. There are no confirmed goshawk nests within the Bitter Sale area. However, in accordance with Phase I direction, an associated post fledging area (PFA) has been adjusted within the Sale. Burned over stands in the PFA were replaced by stands (formally in the Sale) of a more mature structural stage.

Productivity of the soils in high and moderate intensity burn areas also has been affected, especially where the organic layer was consumed. This can only be regained with time as the organic layer is built up. The retention of merchantable stemwood would not contribute

significantly to the buildup of the organic layer. Grasses, forbs, and needle cast from timber stands will contribute significantly more biomass to the organic layer and future productivity. Leaving slash on the ground would also help rebuild the organic layer.

In areas of high burn intensity and steeper slopes, there is an increased potential for soil erosion. Design criteria that avoids concentrating overland flow and connecting disturbed areas to existing channels, utilization of designated drainage crossings for heavy equipment, and avoidance of steep slopes should minimize this potential.

Within all areas that were burned, fuels were reduced to varying degrees. The potential for wildfire in these areas has been reduced in the short term. However, over time as dead trees fall to the ground and new trees begin to grow, the fire hazard will increase due to the combination of high dead fuel loads and flashy young pine fuels. The result of a wildfire reburning in these areas could be significant damage to soils and other resources. Further, fire suppression efforts would be hampered within this wildland-urban interface area because the heavy fuel loads would impede access and fireline construction.

Some of the area that has burned is along the Highway 16 corridor, a heavily traveled route that carries visitors toward Mount Rushmore National Memorial and the surrounding Black Hills. The visual impact of the fire would be partially mitigated through salvage of the fire-killed trees. Other burned areas would remain and provide for visual and other diversity on the landscape.

Silviculturally, the Battle Creek Fire has reduced the potential for natural regeneration to occur in some areas. In areas of high and moderate burn intensity, a large percentage of the pine has been killed. Some residual seed in areas where the organic soil layer remains will provide some regeneration. However, future growth could be dependent upon pine seeding and/or planting. In addition, adjustments will be made to the prescriptions that will retain sufficient numbers of green trees within burned areas to provide a seed source for future regeneration. Timber yield within the burned over area will be reduced over the next rotation period (120 yrs.) and site productivity within the severely burned stands will be reduced.

The burn resulted in an increase in estimated volume removed from 9,008 mbf to 9,546 mbf (6% increase) and approximate acres to be treated from 3,885 to 3,987 acres (3% increase). Actual cruise volume and acres (made available at time of SIR completion) is 8,320 mbf and 2,975 acres.

Developed recreation areas within the Bitter area are not affected by the changed conditions resulting from the Battle Creek Fire.

Based on post-fire observations in and near the Jasper Fire and Grizzly Gulch Fire, the incidence of mountain pine beetle and “Ips” beetle infestation is expected to increase in the area.

No additional changes to the road system would be necessary to remove the fire-killed trees.

Plans for future prescribed burning in the Bitter Unit are not affected by the changed conditions.

Conclusion:

After reviewing the information above, I have determined that the environmental effects of implementing this project as summarized herein are within the scope of those analyzed in the Lakes EA. This project was designed to implement goals and objectives specified by the Forest Plan. This project continues to contribute to the management area emphasis, which is Resource Production Emphasis in the area affected by the burn. Irrespective of the changes resulting from the fire, I believe this project will still contribute toward implementing the Forest Plan goals and objectives as originally intended. Thus, I see no need to change the original decision.

Determination

This completes my review of this supplemental information for the Bitter Timber Sale portion of the Lakes Environmental Assessment and Decision Notice. I have reviewed the information furnished by the review team in this report, attachments and materials incorporated by reference.

It is clear that the circumstances have changed from those under which the original analysis was conducted and decision made. However, the information in this SIR does not present a significantly different picture of the impacts of the action than those presented in the Lakes EA. This project was designed to implement goals and objectives in the Forest Plan. I believe this project as adjusted will still contribute toward implementing those goals and objectives. The project, as adjusted, adequately responds to the seven key issue categories addressed in the EA. The adjustments in implementation described in this report will result in environmental impacts comparable to the levels analyzed and disclosed in the EA supporting that decision. I believe these adjustments are not of a scale and scope that require a supplemental environmental assessment.

/s/ David M. Thom *12/19/2002*
for JOHN C. TWISS Date
Forest Supervisor

Participants in this Review

Core Team

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Other Assistance

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Attachments and References

Attachments

Fire Intensity Map (Bitter TS)

References

The Lakes Environmental Assessment (EA) and Decision Notice/Finding of No Significant Impact (DN/FONSI), Black Hills National Forest, January 2002.

Final Battle Creek Fire Rapid Assessment Team (Battle RAT) Report. Black Hills National Forest, September 2002.